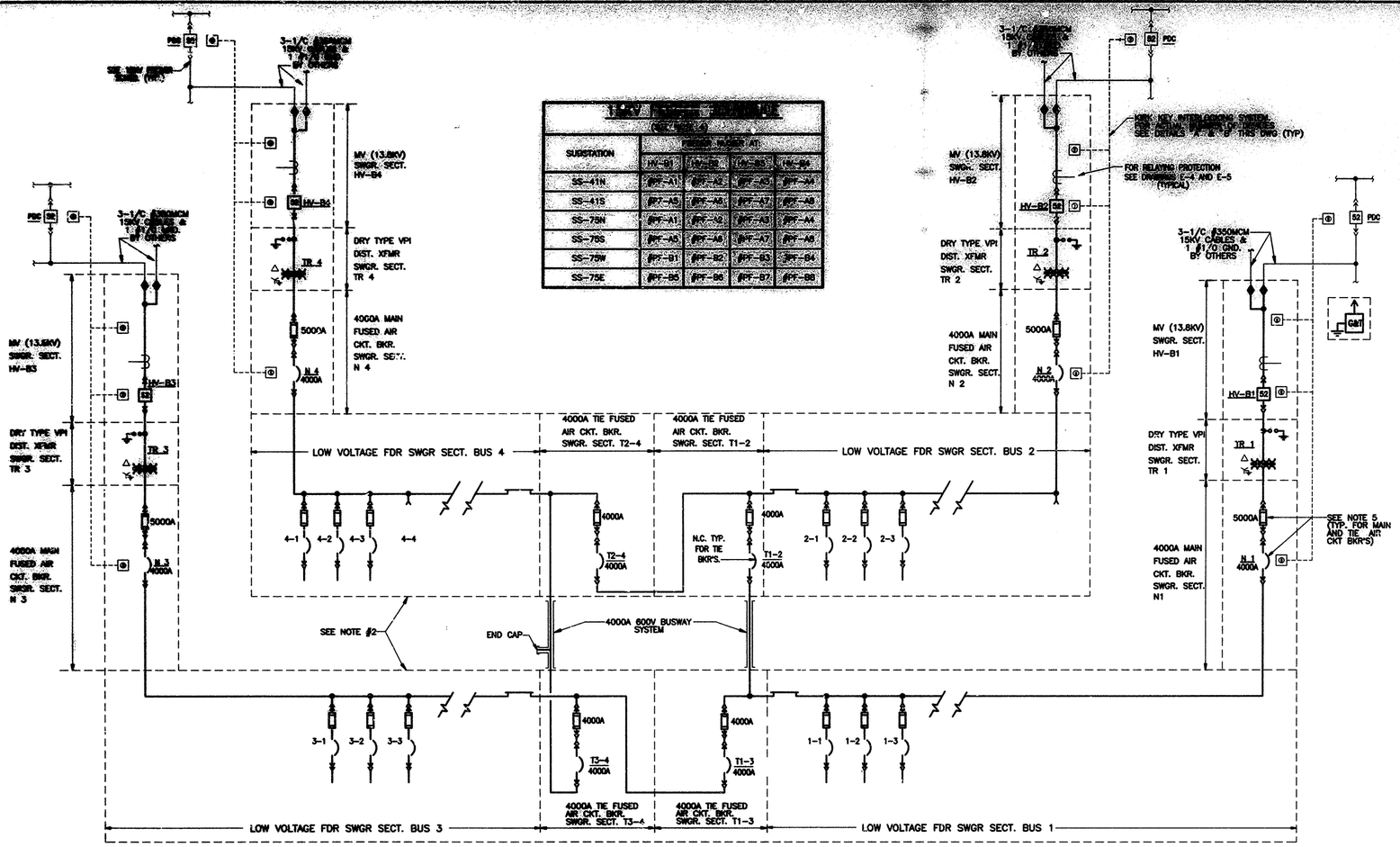
SUBSTATION	BREAKER NUMBER (52)			
	HV-B1	HV-B2	HV-B3	HV-B4
SS-41N	PF-A1	PF-A2	PF-A5	PF-A4
SS-41S	PF-A5	PF-A6	PF-A7	PF-A8
SS-75N	PF-A1	PF-A2	PF-A3	PF-A4
SS-75S	PF-A5	PF-A6	PF-A7	PF-A8
SS-75W	PF-B1	PF-B2	PF-B3	PF-B4
SS-75E	PF-B5	PF-B6	PF-B7	PF-B8



TYPICAL SUBSTATION ONE LINE DIAGRAM

ONE LINE DIAGRAM
LOW VOLTAGE FEEDER SWITCHGEAR SECTION BUS EL

NOTES

1. – [illegible]
2. – [illegible]
3. – [illegible]
4. – [illegible]
5. – A LOCKOUT SYSTEM AND KIRK KEY INTERLOCK SYSTEM SHALL BE PROVIDED [illegible] TO PREVENT THE CLOSING OF THE [illegible] IN THE CONNECTED POSITION UNLESS THE BREAKER ASSOCIATED WITH IT IS LOCKED OPEN.

KIRK KEY INTERLOCK LEGEND

A – KIRK KEY INTERLOCK WITH KEY
"A" – INDICATES INTERLOCK AND KEY DESIGNATION.

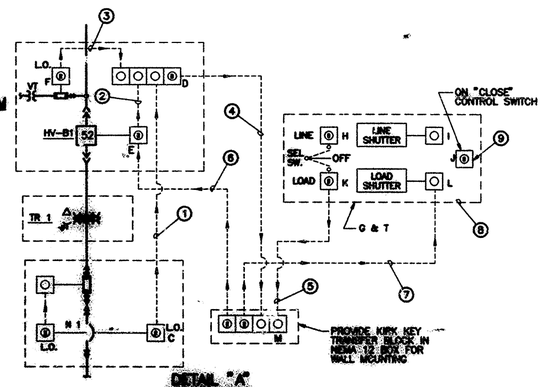
B – KIRK KEY INTERLOCK WITHOUT KEY
"B" – INDICATES INTERLOCK DESIGNATION.

C – KIRK KEY TRANSFER BLOCK
"C" – INDICATES BLOCK AND KEY DESIGNATION

L.O. INDICATES INTERLOCK USED TO LOCK THE DEVICE OPEN.

DETAIL "A" KEY INTERLOCKING SEQUENCE
FOR [illegible] THE LOAD SIDE OF THE MEDIUM VOLTAGE (13.8KV) VACUUM CKT BKR "HV-B1"

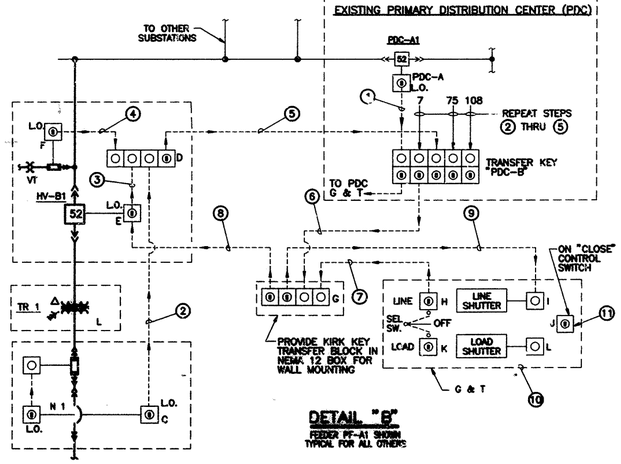
1. [illegible] – LOCK OPEN [illegible] IN BLOCK "D"
2. [illegible] – INSERT KEY "E" IN BLOCK "D"
3. [illegible] – LOCK OPEN
4. INSERT KEY "D" IN BLOCK "M"
5. [illegible] TO "LOAD"
6. [illegible]
7. [illegible] TO START [illegible] "LOAD SHUTTER"
8. [illegible]
9. REMOVE AND POCKET KEY "J"



DETAIL "A"
TYPICAL FOR ALL OTHERS

DETAIL "B" KEY INTERLOCKING SEQUENCE
FOR GROUNDING THE LINE SIDE OF THE MEDIUM VOLTAGE (13.8KV) VACUUM CKT BKR "HV-B1"

1. OPEN BKR "PDC-A1" – LOCK OPEN
   INSERT KEY "PDC-A" IN BLOCK "PDC-B"
2. OPEN BKR "N 1" – LOCK OPEN
   INSERT KEY "C" IN BLOCK "D"
3. OPEN & RACK OUT BKR "HV-B1" – LOCKOUT CUBICLE
   INSERT KEY "E" IN BLOCK "D"
4. RACK OUT BKR "HV-B1" VT.S – LOCK OPEN
   INSERT KEY "F" IN BLOCK "D"
5. INSERT KEY "D" IN BLOCK "PDC-B"
   – REPEAT STEPS (2) THRU (5) FOR ALL SUBSTATIONS
6. INSERT KEY "PDC-B" IN BLOCK "G"
7. ROTATE G&T DEVICE SEL. SW. TO "LINE" POSITION
   INSERT KEY "H" IN BLOCK "G"
8. INSERT KEY "G1" IN BLOCK "E"
   UNLOCK CUBICLE–INSERT G&T
9. INSERT KEY "G2" IN BLOCK "I" TO START SEQUENCE OF UNLOCKING G&T "LINE SHUTTER"
10. CLOSE G&T ("LINE SHUTTER" CAN BE OPEN AT THIS STAGE FOR TEST PROBES INSERTION)
11. REMOVE AND POCKET KEY "J"



DETAIL "B"
FEEDER PF-A1 SHOWN TYPICAL FOR ALL OTHERS

Sheet 3 of 15

OF NY & NJ

Peter K Summers
ENGINEERING PROGRAM MANAGER
WORLD TRADE

Chief Electrical Engineer

Engineering Department
Design Divisions

The World Trade Center Electrical/HVAC Upgrade Program

Title

ELECTRICAL SUBSTATION EQUIPMENT TOWER ONE AND TWO

ELECTRICAL

TYPICAL SUBSTATION ONE LINE DIAGRAM

No.	Date	Revision	Approved

This drawing subject to conditions in contract. All inventions, ideas, designs and methods herein are reserved to Port Authority and may not be used without its written consent.

Designed by	Drawn by	Checked by
FISCHER	D LEAHY	J-m

Date FEB 10, 1995 Scale NONE

Contract Number WTC-802.072A Drawing Number E-2

FILE NAME : 80272E02 FEB. 10, 1995